

## CLAIMS

What is claimed is:

1. A method for distributing transform coefficients of encoded information streams into N packets, said method comprising:
  - a. inserting the  $k_1$  transform coefficients into the first packet, then inserting the next  $k_2$  transform coefficients into the second packet until  $k_N$  transform coefficients are inserted into the  $N^{\text{th}}$  packet; and
  - b. repeating the process in the above step in a reverse order, starting with the  $N^{\text{th}}$  packet where the  $k_{N+1}$  transform coefficients are placed in the  $N^{\text{th}}$  packet, then the next  $k_{N+2}$  transform coefficients are inserted into packet N-1 until the  $k_{2N-1}$  transform coefficients are placed in the first packet; and
  - c. repeating the above two steps until all transform coefficients are placed in the N packets.
2. The method of Claim 1 further comprising encoding said stream by transforming the original signal with a non-linear transform.
3. The method of Claim 2 wherein said non-linear transform comprises applying
  - a matching pursuit algorithm.

4. The method of Claim 3 wherein applying said matching pursuit algorithm comprises the steps of:

- a. generating K frames of dimension X by Y from said stream;
- b. comparing a residual signal with a dictionary of functions, said residual signal being the information stream, and said dictionary containing temporal and spatial functions;
- c. selecting a function which best matches the residual signal;
- d. encoding said information stream using parameters and correlation coefficients of said selected function;
- e. generating a new information stream from said encoded stream; and
- f. repeating the steps b, c, d and e on said new information stream until a predefined constraint on either the quality of the encoded stream or the bit rate of the encoded stream is met; and
- g. repeating the above steps until the end of the information stream is reached.

5. The method of Claim 4 where said applying further comprises creating a dictionary comprising temporal and spatial functions prior to said generating said frames.

6. The method of Claim 1 further comprising encoding said stream by transforming the original signal with a linear transform.

7. The method of Claim 6 wherein said linear transform comprises applying a Discrete Cosine Transform.
8. The method of Claim 6 wherein said linear transform comprises applying a wavelet transform.
9. A program storage device readable by machine tangibly embodying a program of instructions for said machine to perform a method for distributing transform coefficients of encoded information streams into N packets, said method comprising:
  - a. inserting the  $k_1$  transform coefficients into the first packet, then inserting the next  $k_2$  transform coefficients into the second packet until  $k_N$  transform coefficients are inserted into the  $N^{\text{th}}$  packet;
  - b. repeating the process in the above step in a reverse order, starting with the  $N^{\text{th}}$  packet where the  $k_{N+1}$  transform coefficients are placed in the  $N^{\text{th}}$  packet, then the next  $k_{N+2}$  transform coefficients are inserted into packet N-1 until the  $k_{2N-1}$  transform coefficients are placed in the first packet; and
  - c. repeating the above two steps until all transform coefficients are placed in the N packets.
10. An improved processing system for distributing transform coefficients of encoded information streams into N packets for delivery, said improvement comprising:

processing means adapted to provide improved processing by inserting  $k_1$  transform coefficients into a first packet, then inserting the next  $k_2$  transform coefficients into a second packet until  $k_N$  transform coefficients are inserted into the  $N^{\text{th}}$  packet; repeating the process in a reverse order, starting with the  $N^{\text{th}}$  packet where the  $k_{N+1}$  transform coefficients are placed in the  $N^{\text{th}}$  packet, then the next  $k_{N+2}$  transform coefficients are inserted into packet  $N-1$  until the  $k_{2N-1}$  transform coefficients are placed in the first packet; and repeating the above two steps until all transform coefficients are placed in the  $N$  packets.

11. The improved processing system of Claim 10 wherein said improved processing further comprises encoding said stream by transforming the original signal with a non-linear transform.
12. The improved processing system of Claim 11 wherein said non-linear transform comprises applying a matching pursuit algorithm.
13. The improved processing system of Claim 12 wherein said system additionally comprises apparatus for representing a video information stream prior to coding and transmission, said apparatus comprising:
  - a. frame buffer component for generating  $K$  frames of dimension  $X$  by  $Y$  from said stream;
  - b. pattern matcher component for comparing a residual signal with a dictionary of functions, said residual signal being the information stream, and said

dictionary containing temporal and spatial functions and for selecting a function which best matches the residual signal;

c. quantization component for encoding said information stream using parameters and correlation coefficients of said selected function and for generating a new information stream from said encoded stream; and

d. threshold component for terminating said steps of comparing, selecting, encoding, and generating when a predefined constraint on the quality of the encoded stream or the bit rate of the encoded stream is met and when the end of the information stream is reached.

14. The improved processing system of Claim 13 wherein said apparatus further comprises a dictionary comprising temporal and spatial functions for use by said pattern matcher.